

What is claimed is:

1. A method for real-time online search processing over inter-connected computer networks, by way of a wireless handheld device client that is enabled for Java 2 Micro Edition-like applications, the method comprising the steps of:

- 5 a. configuring a server to recognize wireless handheld device clients and to communicate with the wireless handheld device clients using XML;
- b. receiving from the server a country designation and a product keyword request communicated to the server by the wireless handheld device client;
- 10 c. accessing an offline database having vendor descriptions for a plurality of vendor sites over inter-connected computer networks, the vendor descriptions having information about each of the plurality of vendor sites include:
 - i) a URL for each of the plurality of vendor sites;
 - 15 ii) a search form URL for each of the plurality of vendors;
 - iii) description of domains found in each of the plurality of vendor sites;
 - iv) generalized rules about how product information is organized on each of the plurality of vendor sites;
 - 20 v) samples of price and product information retrieved from the plurality of vendors;
- d. identifying from the vendor descriptions, vendor sites which may have price information relevant to the product keyword request for the designated country;
- 25 e. constructing search requests for the product keyword using the vendor descriptions for each of the identified vendor sites, including the corresponding search form URL;
- f. submitting to the identified vendor sites the constructed search requests;
- 30 g. extracting price and product information from search results received in response to the submitted search requests, wherein the extracted price and product information are in a native language of the site; and

h. communicating the extracted price and product information to the wireless handheld device client in XML by way of the server.

2. The method of claim 1 wherein the general rules include delimiters which can uniquely identify the occurrence of price and associated information within each
5 of the plurality of vendors.

3. The method of claim 1 wherein the extracting step includes the step of verifying accurate matches in the search results received in response to the submitted search requests with the desired product.

4. The method of claim 1, wherein the vendor descriptions are automatically
10 constructed through an inductive learning method.

5. The method of claim 4, wherein the inductive learning method can work in multilingual environments.

6. The method of claim 5, wherein the inductive learning method is domain independent.

15 7. The method of claim 5, wherein the inductive learning method employs a small set of training data including product examples and URL's from online stores.

8. A method for real-time online search processing over inter-connected computer networks of shopping requests received from a wireless handheld client, comprising the steps of

20 a. communicating with the wireless handheld client through a remote sever using XML;

b. maintaining in an offline database information for a plurality of vendor sites over inter-connected computer networks, wherein the information includes URL's, search form URL's, description of domains, and vendor descriptions,
25 wherein the vendor descriptions include generalized rules about how product information is organized on each of the vendor sites;

c. processing a product keyword request, received from the wireless handheld device client through the remote server;

d. extracting real-time price and product information from identified ones of the plurality of vendor sites, wherein the extracted price and product information are in a native language of the site; and

5 e. communicating the extracted price and product information to the wireless handheld device client through the remote server.

9. The method of claim 8, wherein the step of processing a product keyword request further comprises the step of receiving from the wireless handheld device client a single country designation; and further wherein the extracting step includes the steps of

- 10 i) posting a request using the processed parameters to at least one of the plurality of vendors online, in real-time; and
- ii) retrieving data related to the price and product information from search results obtained in response to the posting step;
- iii) sorting the retrieved data by price; and
- 15 iv) displaying processed data for the desired product from at least one of the plurality of vendors.

10. The method of claim 9, wherein in the step of posting a request, the processed parameters are the combination of the search parameters and vendor identification received from the user, vendor description for the identified vendor, and

20 the URL of the identified vendor.

11. The method of claim 9, wherein the vendor descriptions maintained in the offline database includes patterns which identify information in vendor sites, and further wherein the step of retrieving data employs the patterns.

12. The method of claim 9, wherein the step of extracting real-time price and product information is domain-independent and language-independent.

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13. The method of claim 9, wherein the step of communicating the processed data is based on wrapping the information to be displayed in XML.